Simulations of Land Surface parameters and related meteorological elements with WRF model over the Tibetan Plateau

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Surface parameters and related meteorological elements are important boundary conditions for climatological modeling and Asian monsoon system. WRF model was used to estimate surface parameters and related meteorological elements, including air temperature, ground surface temperature, net radiation flux, soil heat flux, sensible heat flux and latent heat flux over heterogeneous land surface over the Tibetan Plateau. As a case study, the methodology was applied to the experimental area of the Coordinated Enhanced Observing Period (CEOP) Asia-Australia Monsoon Project (CAMP) on the Tibetan Plateau (CAMP/Tibet), which located at the north Tibetan Plateau. To validate the proposed model results, the ground-measured surface variables and land surface heat fluxes (net radiation flux, soil heat flux, sensible heat flux and latent heat flux) were compared to WRF model values. The results show that the derived surface variables and land surface heat fluxes over the study area are in good accordance with the land surface status. It is therefore concluded that the WRF model is can be modeled for the retrieval of land surface variables and land surface heat fluxes over the Tibetan Plateau.